

Appl. Serial No. 10/050,111

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (currently amended) A control device for detecting the position of a mobile component, comprising:

- (a) a mobile component (10);
- (b) ball pivot means (14, 16) connecting said mobile component for rotation around three different axes relative to a fixed component (12);
- (c) detection means for optically detecting the position of said mobile component relative to said fixed component, said detection means being connected with an information processing means (30) and including:
  - (1) a pair of point supports (20) each defined by portions of a sphere that is concentrically arranged about the axis of said ball pivot means, each of said point supports being connected with one of said mobile and fixed components and including a plurality of uniformly spaced optically detectable points (26); and
  - (2) a pair of arrays of photodetectors (22) connected with the other of said fixed and mobile components opposite and spaced from said point supports, respectively[.];
- (d) said information processing means including programmed means for determining the positions of the said points with respect to said photodetector arrays and for tracking the trajectories of said points

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upon displacements of the mobile component, said programmed means being programmed for first searching in each array for a group of three photodetectors seeing a same point, and then among the remaining photodetectors, for a group of two photodetectors seeing a same point and comprising a central photodetector, and then among the remaining photodetectors, for the groups of two photodetectors of the contour of the array seeing a point, and then among the remaining photodetectors, for photodetectors each seeing one point or a portion of a point overlapping an edge of an array, and then for determining the positions of the centers of the points seen by the photodetectors, and for repeating these determinations with a sufficient frequency so that the displacements of the points between two successive determinations are less than the radius of a point.

2. (original) A device according to claim 1, wherein the arrays of photodetectors are fixed and the said support is borne by the mobile component.

Claim 3 (cancelled)

4. (original) A device according to claim 1, wherein said photodetector arrays are positioned at 90° from one another around a rotation axis of the mobile component.

5. (original) A device according to claim 4, wherein one of the arrays is angularly offset around said rotation axis, by an angular distance corresponding to half the angular extent of a photodetector.

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6. (original). A device according to claim 1, wherein each array comprises at least three rows and three columns of photodetectors.

7. (original) A device according to claim 6, wherein one photodetector of each array of three rows and three columns of photodetectors is suppressed or disconnected.

8. (original) A device according to claim 1, wherein the supports and the arrays of photodetectors are centered on the ball pivot.

9. (original) A device according to claim 1, wherein the points are equidistant and located on apexes of identical and adjacent equilateral triangles.

10. (original) A device according to claim 1, wherein each point has a dimension corresponding to at least that of a photodetector of the said arrays.

11. (original) A device according to claim 1, wherein the points are optically transparent, reflecting, diffusive and/or colored.

12. (original) A device according to claim 1, wherein said support bears at least one reference point for which the optical properties and/or the dimensions are different from those of the others points.

Claim 13 (cancelled)

14. (original) A device according to claim 1, wherein the mobile component is a lever.

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15. (new) A device according to claim 12, wherein said other points are identical with one another.